

ABSTRACT

A system and method for path provisioning in a network calculates an optimal path using a greedy algorithm with backtracking to execute service level agreements (SLAs). More specifically, a sequential path shifting (SPS) algorithm compares a cost of a suboptimal path for a present quadruplet with the cost of switching a path for a previous quadruplet configured for alteration. If the present path is already an optimal path, then no further operations are performed. However, if the cost of a suboptimal path is greater than the switching cost, the previous path is altered so that an optimal path may be configured for the present quadruplet. Otherwise, the present quadruplet maintains its existing path. The capacity of the network is iteratively adjusted to compensate for path selection. The present system may be applied to a differentiated services network or an optical network.